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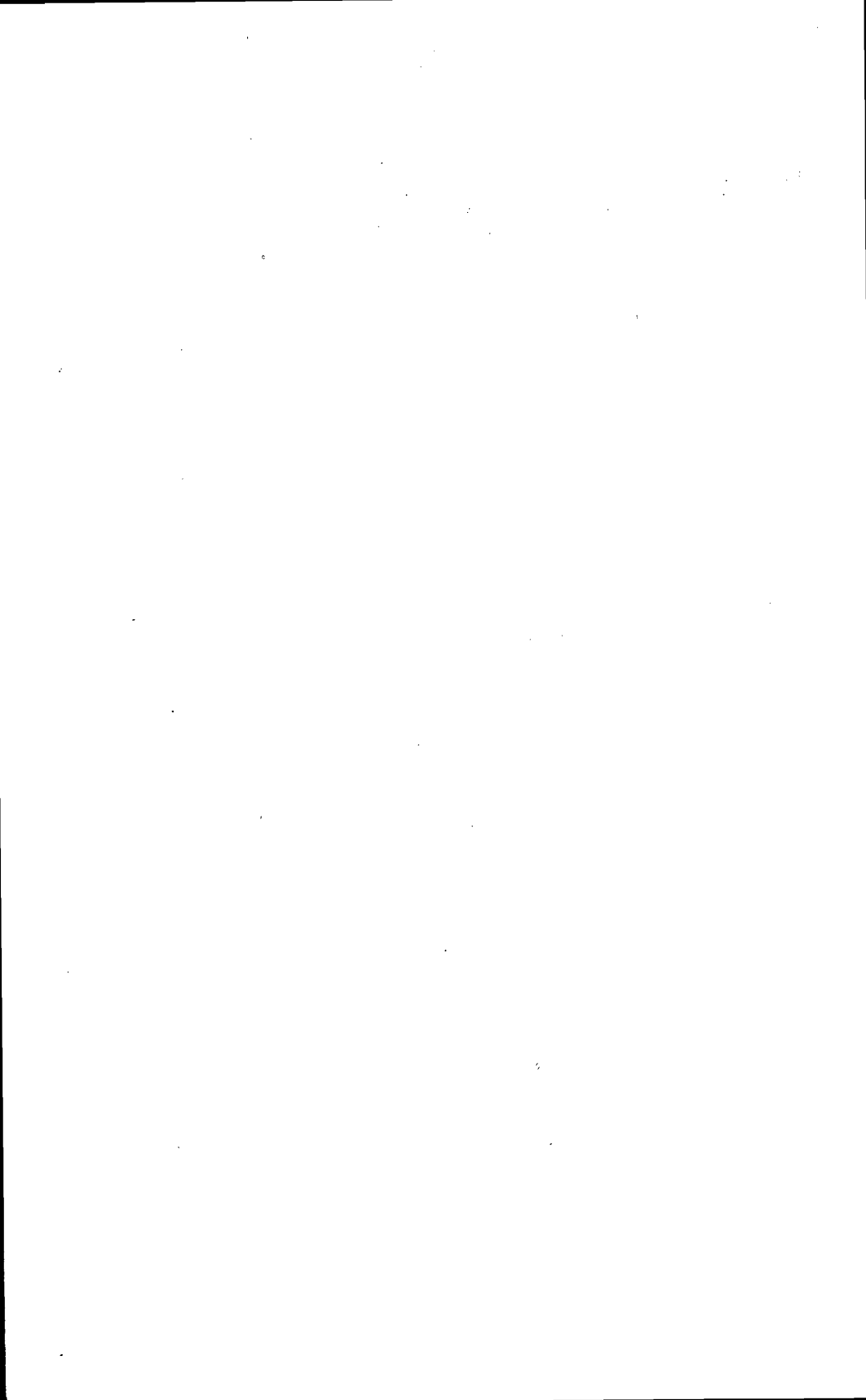
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## Appendix C

### Hours Worked in Manufacturing Industries, per Week per Wage Earner



## Appendix C

### Hours Worked in Manufacturing Industries, per Week per Wage Earner

#### INTRODUCTORY NOTE

THIS appendix consists of two tables. Table C-1 gives available annual data on both full-time and actual hours of work in all factories combined, for the years 1899-1939. Footnotes to this table describe the sources of the figures.

In the second table, C-2, we present hours data for individual industries for Census years 1909-39. These data cover only industries for which we have been able to compute indexes of physical output and employment, and are given only for those Census years to which the indexes apply. Data for some other industries and other years are available in the sources cited, which are as follows: NICB refers to the National Industrial Conference Board (*Wages, Hours and Employment in the United States, 1914-1936*, and later supplementary publications); BLS, to the Bureau of Labor Statistics (*Hours and Earnings in the United States, 1932-40*, Bulletin No. 697), and to unpublished estimates prepared by Witt Bowden and presented here through the courtesy of A. F. Hinrichs, Acting Commissioner of Labor Statistics; and Census, to the Census of Manufactures (*Census of Manufactures: 1939, Man-Hour Statistics for 171 Selected Industries*, prepared by A. F. Beal and published jointly by the Department of Commerce and the Department of Labor, and similar publications for 1933, 1935, and 1937; and the Census of Manufactures report for 1909). Other sources are specifically noted.

Sometimes the Census and BLS industry classifications bearing the same title really refer to different industries. At other times different titles refer to the same industry. This difficulty occurs also among Census and NICB industries and NICB and BLS industries. Reconciliations of the BLS and the Census industry classifications, and of the NICB and Census classifications (generously sent to us by the Bureau of Labor Statistics and by the National Industrial Conference Board) are too long to reproduce here. We have, however, used this information in matching the BLS and NICB data with the Census industries. The percentages

TABLE C-1

## ALL MANUFACTURING INDUSTRIES COMBINED

Average Hours of Work per Week per Wage Earner

Year	Full-Time Hours			Actual Hours		
	Dept. of Commerce and Labor —Bureau of Labor Statistics	Census of Manufac- tures	National Industrial Conference Board	Bureau of Labor Statistics	National Industrial Conference Board	Census of Manufac- tures
	(a)	(b)	(c)	(d)	(e)	(f)
1899	59.1					
1900	59.0					
1901	58.7					
1902	58.3					
1903	57.9					
1904	57.7					
1905	57.7					
1906	57.3					
1907	57.3					
1908	56.8					
1909	56.8	56.8		52.7		
1910	56.6					
1911	56.4					
1912	56.0					
1913	55.5					
1914	55.2	55.1	54.9	51.0	51.5	
1915	55.0					
1916	54.9					
1917	54.6					
1918	53.6					
1919	52.3	50.8		47.8		
1920	51.0		49.9	47.1	48.2	
1921	50.7	50.3	49.6	45.2	45.6	
1922	51.2		49.9	47.1	49.2	
1923	51.0	51.1	49.9	47.3	49.2	
1924	50.4		49.7	45.4	46.9	
1925	50.3		49.8	46.3	48.2	
1926	50.3		49.8	46.5	48.1	
1927			49.5	46.3	47.7	
1928			49.6	46.1	47.9	
1929		50.6	49.6	45.7	48.3	
1930			48.6	43.5	43.9	
1931			48.0	41.7	40.4	
1932			47.9	38.2	34.8	
1933				37.8	36.4	38.1
1934				34.5	34.7	
1935				36.5	37.2	36.4
1936				39.1	39.5	
1937			40.8	38.6	38.7	37.2
1938			40.3	35.5	34.3	
1939			40.3	37.6	37.6	37.0

of coverage of the Census, the Bureau of Labor Statistics, and the National Industrial Conference Board samples of hours data vary. The Census coverage is greatest and that of the NICB samples is smallest, though not always in every industry.

The data for individual industries represent actual hours worked per week per worker in every case, except those for 1909, which are "full-time" or "prevailing" hours of labor per week, reduced to approximate actual hours.<sup>1</sup> The figures are annual averages except in the case of those for 1914, which relate to July only.

<sup>1</sup> As published in the Census, the 1909 figures are presented in the form of open-end frequency distributions, thus necessitating estimation of the mean value in each of the classes, including the open-end classes, in order to secure a mean covering the entire distribution. The 1909 full-time figures for every industry have been reduced by the percentage difference between actual and full-time hours worked in all factories combined in 1909. This is hardly a satisfactory expedient, yet it is better than none at all.

Footnotes to Table C-1.

<sup>a</sup> Based on data for 14 industries taken from the *Nineteenth Annual Report* of the U. S. Commissioner of Labor (1904) and later reports of the Commissioner, and bulletins of the U. S. Bureau of Labor Statistics; see Paul H. Douglas, *Real Wages in the United States, 1890-1926* (Houghton Mifflin, 1930), p. 116. The series for 1899-1903 differs only slightly from an average computed from figures published in the *Nineteenth Annual Report* covering 456 occupations in 48 industries; see Leo Wolman, *Hours of Work in American Industry*, Bulletin 71 (National Bureau of Economic Research, 1938).

<sup>b</sup> Computed from frequency distributions published in the U. S. Census of Manufactures: 1909-21, by P. F. Brissenden *Earnings of Factory Workers*, p. 354; 1923 and 1929, by Leo Wolman, *op. cit.*

<sup>c</sup> Covers 24 industries through 1932 (not including iron and steel), *Wages in the United States in 1931* (National Industrial Conference Board, 1932) and Leo Wolman, *op. cit.*; covers 25 industries beginning with 1937, *The Conference Board Economic Record* (Mar. 28, 1940), and later releases. The 1914 figure is for July; the 1920 figure, for June-Dec. 1920; the 1922 figure, for July-Dec. 1922.

<sup>d</sup> For 1932-39, U. S. Bureau of Labor Statistics, *Hours and Earnings in the United States, 1932-40* (Bulletin 697, 1942), covers a large sample of establishments in practically all manufacturing industries. For 1909-32 from Witt Bowden, "Wages, Hours, and Productivity of Industrial Labor, 1909 to 1939," *Monthly Labor Review*, Sept. 1940, and unpublished data provided by Mr. Bowden; derived, from data for 12 industries, by dividing payrolls by average hourly earnings and by average number employed, and adjusting to the level of hours in all manufacturing industries combined in 1909, 1919, 1929 and 1932. These levels were derived from the Census full-time hours, after adjustment for under-time, except for 1932, which is the 1932 level of the BLS series of actual hours for all manufacturing industries combined. For 1919-23, based on figures presented in the National Research Project report on *Production, Employment and Productivity in Manufacturing* already cited.

<sup>e</sup> Based on a sample of 25 industries; see M. A. Beney, *Wages, Hours and Employment in the United States, 1914-1936* (National Industrial Conference Board, 1936), pp. 44-47, *The Conference Board Economic Record* (Mar. 28, 1940), and later releases. The 1914 figure is for July; the 1920 figure for June-Dec. 1920; the 1922 figure, for July-Dec. 1922.

<sup>f</sup> For 1933, 32 industries; for 1935, 59; for 1937, 105; and for 1939, 171 industries. A 52-week year was assumed in converting the Census data, which are given on a monthly basis. See A. F. Beal, *Manhour Statistics for 105 Selected Industries*, Census of Manufactures: 1937, published by the Bureau of the Census and the Bureau of Labor Statistics (rotoprinted, Dec. 1939), and similar reports for other Census years. The corresponding figures for the 32 industries for 1935 and 1937 are 36.3 and 36.9 respectively; see A. F. Hinrichs and A. F. Beal, in *Monthly Labor Review* (June 1940).



## HOURS WORKED PER WEEK

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Industry	Source	1909	1914	1921	1923	1925	1927	1929	1931	1933	1935	1937	1939
<i>Tobacco products</i>													
Cigars and cigarettes	BLS										35.0	37.2	35.6
	Census									34.8	33.5	35.3	33.8
Cigarettes	Census									32.7	34.1	35.2	34.5
Cigars	Special <sup>a</sup>							48.8					
	Census									35.5	33.1	35.3	33.3
Chewing and smoking tobacco	BLS									38.8	34.9	36.2	34.1
	Census									34.4	33.6	34.6	34.3
Tobacco products, total	Census									34.4	33.5	35.2	33.8
	BLS	50										37.1	35.4
<i>Textile products</i>													
Carpets and rugs, wool	NICB <sup>b</sup>										35.8	34.4	34.7
	BLS									36.8	36.5	34.1	36.1
	Census	53								35.1	35.8	33.2	35.0
Clothing, men's	BLS						39.3	38.0	36.6	33.2	30.4	32.0	33.2
	Census											31.6	33.5
Clothing, women's, n.e.c.	BLS										31.9	31.8	33.9
Cotton goods <sup>c</sup>	BLS				47.8	45.4	49.9	47.0	45.1	41.4	34.6	36.2	36.7
	Census	55								40.2	33.7	35.4	36.3

<sup>a</sup> Based on a sample covering 25 percent of the wage earners in the industry, collected by Rossmore, Robbins and Co. See H. Magdoff, I. H. Siegel, and M. B. Davis, *Production, Employment, and Productivity in 59 Manufacturing Industries, 1919-36*, Part Two (National Research Project, Philadelphia, 1939), p. 217.

<sup>b</sup> The NICB designation is "Other woolen products" and applies principally to rugs, according to the NICB.

<sup>c</sup> The available NICB series relates to cotton manufacturing in the Northern states alone. An NICB series for "cotton-south" is available for the period through 1928, but it is considered by the NICB to be based on an inadequate sample.



## Hours Worked in Factories, per Week per Wage Earner, Census Years, 1909-39

Industry	Source	1909	1914	1921	1923	1925	1927	1929	1931	1933	1935	1937	1939
<i>Textile products (concluded)</i>													
Hats, fur-felt	BLS									31.8	33.0	32.2	
	Census	50											
Knit goods	NICB	50.8	46.8	46.3	45.1	47.0	47.6	42.2	39.2	34.5	36.6	36.6	
	BLS								39.7	34.6	36.0	36.2	
	Census	54							38.4	34.1	34.9	35.8	
Hosiery	BLS								39.9	34.3	35.5	35.6	
	Census								38.6	33.7	34.7	35.6	
Underwear	BLS								39.3	34.5	35.7	36.9	
	Census								38.0	33.4	35.0	36.0	
Outerwear	BLS									36.3	37.1	37.0	
	Census									36.0	35.0	35.8	
Shirts and collars, men's	BLS									32.3	34.0	34.9	
	Census										33.2	34.6	
Silk and rayon goods	NICB	50.8	44.9	46.5	46.9	45.9	47.8	44.3	37.5	32.1	35.3	35.2	
	BLS								37.1	34.8	35.9	36.5	
	Census	53							37.8	34.5	35.0	36.6	
Woolen and worsted goods	NICB <sup>d</sup>	53.1	45.9	47.5	44.1	45.1	46.4	41.8	39.5	37.3	35.0	36.6	
	BLS			47.8	47.4	46.9	45.4	45.4	41.3	36.8	35.3	36.4	
	Census	54							39.4	36.0	34.3	36.0	

## HOURS WORKED PER WEEK

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Industry	Source	1909	1914	1921	1923	1925	1927	1929	1931	1933	1935	1937	1939
<i>Leather products</i>													
Leather	NICB		50.1	46.6	47.6	47.5	45.8	47.6	45.2	41.8	38.1	38.2	38.6
	BLS									41.1	38.2	38.8	38.7
Shoes, leather	Census	54								40.2	38.0	37.8	37.8
	NICB*		53.6	45.7	45.6	45.8	45.2	44.2	44.5	39.6	37.1	38.3	36.0
	BLS				46.6	44.6	44.7	43.5	41.6	39.0	35.5	36.1	35.7
	Census	52											
<i>Rubber products</i>													
Rubber goods, other	BLS									37.9	37.5	39.1	38.9
	Census										36.7	37.8	38.2
Shoes, rubber	BLS										36.2	38.3	37.5
	Census										36.0	35.3	34.3
Tires and tubes	NICB											31.5	34.7
	BLS									31.6	32.3	31.8	35.0
	Census										31.3	31.1	34.2
Rubber products, total	NICB		49.1	43.8	44.8	44.5	45.4	44.8	38.1	32.7	33.1	33.3	35.5
	BLS										34.7	35.4	36.9
	Census										33.8	34.1	35.8
<i>Paper products</i>													
Paper and pulp	NICB		53.9	49.2	51.8	51.3	51.5	52.1	44.1	41.1	39.6	42.1	40.7
	BLS									40.6	38.9	41.0	40.3
	Census	58								40.4	38.6	40.9	40.3
Paper	Census									40.5	38.7	41.0	40.6
	Pulp									40.2	38.2	40.6	39.3

<sup>a</sup> Includes rugs and miscellaneous wool products up through 1933.

<sup>e</sup> Includes shoe cut stock and findings.



## HOURS WORKED PER WEEK

241

Industry	Source	1909	1914	1921	1923	1925	1927	1929	1931	1933	1935	1937	1939
<i>Chemical products (concluded)</i>													
Soap	BLS									40.5	38.0	39.8	39.8
	Census	52								39.5	37.4	38.4	38.1
Chemical products, total	NICB*		56.8	49.7	52.8	52.7	50.1	50.6	44.6	39.2	39.3	39.9	39.5
	BLS										38.8	40.5	39.5
<i>Petroleum and coal products</i>													
Petroleum refining	NICB											36.4	36.4
	BLS									37.9	35.0	36.0	36.1
	Census	55						51.3 <sup>b</sup>	46.3 <sup>b</sup>	38.9	35.5	36.0	37.1
<i>Stone, clay and glass products</i>													
Cement	NICB											37.8	38.4
	BLS									34.1	33.9	38.8	38.2
	Census	61									34.3	38.3	37.9
Clay products	BLS									32.2	35.8	40.2	37.8
	Census										35.4	38.8	37.5
Glass	BLS									35.9	35.4	37.1	35.2
	Census	52									36.0	36.2	35.4
Lime	Census	57										41.5	39.7

<sup>f</sup> Weighted combination of the two industries: printing, book and job; and printing, newspapers and magazines.

<sup>g</sup> Weighted combination of the two NICB industries, chemicals and paints and varnishes.

<sup>h</sup> Based on unpublished Census data supplied to the National Research Project. See H. Magdoff, I. H. Siegel and M. B. Davis, *op. cit.*, Part Two, p. 183, note 5.

## Hours Worked in Factories, per Week per Wage Earner, Census Years, 1909-39

Industry	Source	1909	1914	1921	1923	1925	1927	1929	1931	1933	1935	1937	1936
<i>Forest products</i>													
Lumber and millwork	NICB <sup>1</sup>									35.4	39.3	40.1	39.6
	BLS <sup>2</sup>	53.0	47.7	47.7	49.5	49.1	47.7	45.4	40.1		37.6	43.1	38.9
Planing-mill products	BLS										39.5	42.0	41.1
	Census												39.7
Lumber-mill products, n.e.c.	BLS				44.4	45.8	45.7	45.4	43.0	37.4	37.2	43.3	38.4
	Census	56											37.4
<i>Iron and steel products</i>													
Blast-furnace and steel- mill products	NICB									34.0	34.2	36.6	34.6
	BLS	57.0	54.1	54.1	57.7	53.6	53.1	54.9	43.4	32.5	34.9	38.7	35.5
	Census	58			48.1	45.6	45.2	45.7	35.0	34.8	36.4	38.5	35.7
Blast-furnace products	Census	66						57.6 <sup>k</sup>		38.1	39.7	42.3	37.8
Cast-iron pipe	BLS									29.7	31.0	37.8	36.4
	Census											36.7	37.1
Steel-mill products	Census	57								34.7	36.2	38.3	35.7
Tin cans and tinware	BLS										38.3	39.2	38.8
	Census											38.8	37.5
Wire, n.e.m.	Census	55										37.1	37.9
Wrought pipe, n.e.m.	Census											34.5	36.0

## HOURS WORKED PER WEEK

243

Industry	Source	1909	1914	1921	1923	1925	1927	1929	1931	1933	1935	1937	1939
<i>Nonferrous-metal products</i>													
Clocks, watches and materials	BLS									37.7	39.9	40.5	37.9
Copper	Census	55										44.9	
Lead	Census	55										42.3	
Zinc	Census	58										39.3	
Nonferrous-metal products, n.e.c.	BLS									35.6	39.3	39.6	39.6
	Census											39.4	40.3
Primary nonferrous metals	BLS										38.9	41.3	38.2
	Census											42.4	39.5
<i>Machinery</i>													
Agricultural implements	NICB <sup>1</sup>		52.0	41.3	49.5	49.9	49.2	49.6	35.5				
Refrigerators, mechanical	Census									36.3	38.2	38.0	36.8
Typewriters	BLS											40.2	37.3
<i>Transportation equipment</i>													
Automobiles, incl. bodies and parts	NICB		51.4	44.7	47.7	47.3	46.4	46.8	36.9	36.0	37.4	35.3	34.9
	BLS				47.1	45.5	43.8	42.8	35.6	35.2	37.1	35.9	35.5
Cars, railroad	Census	53								34.3	37.6	35.2	34.9
	BLS										35.2	39.4	36.0
Locomotives, n.e.m.	Census	53									34.4	43.7	36.7
	BLS												
Ships and boats	Census	56								31.0	32.8	37.1	38.0
	BLS												
	Census	52											

<sup>1</sup> Includes the minor industries boxes and cooperage; excludes logging camps, a rather important branch of the sawmill industry.

<sup>2</sup> Weighted combination of the two BLS industries, planing-mill products and lumber-mill products, n.e.c.

<sup>3</sup> Derived from a special Census study. See *Monthly Labor Review* (Aug. 1932), p. 263.

<sup>4</sup> Includes tractors.

